

Reverse Crosses

484

200

A. Y40 x Y53.

	-R	-S	+R	+S.
1.	7	7	6	0
2.	3	1	4	0

$\Sigma$  10 8 10 0 28

T(B.)	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.
1.	2	3	4	0							
2.	4	3	4	0							
3.	11	2	6	0							
4.	9	4	7	0							
5.	10	5	2	1							
6.	15	6	9	1							
7.	7	5	7	1							
8.	5	7	7	0							
9.	2	4	1	1							
10.	8	7	3	0							

$\Sigma$  73 46 50 4 173.

Expressed as percentages.

	-R	-S	+R	+S.	
A(0).	35	30	35	0	{ 28
A(B.)	42.3	26.6	28.8	2.3	{ 173
B(0)	31.9	47.4	4.3	16.4	{ 116
B(B.)	34.9	39.0	2.5	22.4	{ 312

See summaries of data

B. Y64 x 58-161.

T(0).	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
1.	4	4	0	0						
2.	2	3	1	1						
3.	2	5	0	2						
4.	1	4	1	0						
5.	6	9	2	2						
6.	5	9	0	4						
7.	3	5	0	2						
8.	2	4	0	2						
9.	5	8	1	3						
10.	7	4	0	3						

$\Sigma$  37 55 5 19 116.

T(B.) —

$\Sigma$  109 125 8 70 312.

See next page.

Y<sub>6</sub> Y<sub>8</sub> 58-161 B

484a

YYO X Y53 A

April 20, 1947

A :

-R	-S	+R	+S.	
7	9	3	0	
4	8	3	1	
7	5	4	2	
20	22	10	3	55

hypertrophic cysts,  
+R > -S occasionally.

A(B<sub>1</sub>)

9	4	4	1	18
8	4	4	0	16
8	8	4	0	20
11	4	3	1	19
7	4	8	1	20
16	10	8	0	34
59	34	31	3	127

B : 8 9 1 2 20

B(B<sub>1</sub>)

6	7	0	6	
4	9	1	2	
10	16	1	8	
10	5	0	1	

20 21 1 9 7  
2 2 11 51 6

A

8 1 1 2 A(BD<sub>2</sub>)192  
12/24

284a.

484 ctd. Y64 x S8-161. T(B<sub>1</sub>)

-R -S +R +S.

1.	7	4	1	7
2a.	5	7	1	7
b.	8	10	1	4
c.	9	5	0	4

numerals designate separate recombination plates. letters are testing plates.

3a.	4	14	1	1
b.	6	7	1	5

4a.	5	12	0	3
b.	6	8	1	4

5a.	8	10	0	2
b.				

Retest - phage n.g. ?? 13-R: 6+R.  
} appearance very poor!

6.	11	6	6	1:
7b.	10	6	0	0

7a.	5	8	0	6
-----	---	---	---	---

8a.	9	5	1	5
8b.	2	10	0	7

9a.	7	10	0	2
b.	10	3	0	5

10a.	10	9	0	3
b.	7	4	1	7

$\Sigma$  109 125 8 70. 312

N. tetrasperma

A                    B.  
Bv 16 / sub. + sub      spread spores (or pinituccia) on agar  
surface.

2/26/47 Irradiate spores c ca 20,000 r (courtesy of Pollard)

isolated Transf spores to small corn meal agar slants + heat-activate.

2/27 No. E unirradiated controls.

Fruit scoring -

	8 hr	24 hr	48 hr	72 hr	96 hr	Excitable	# Fru. 3/1	28	30%
Sub. 16									
Control	100	80	37	+ 16	53				
X (16)	100	69	9	7	16		51	=	76%

Sub. 16	47	+ 34	69	+ 6	5	3			
E.	21	-	25	(4)	0	0			
=	70	(4)	=	27	5	7			
X-ray	50	14							

E	77	38	13	0	6				
X-ray	41	124	24	0	0				

C: 40 / 70 ; 22/40 ♀

aggravation      100%      100%      100% + 3 Scars

sterilization trans. sterile to 100% - CMA      C → 28  
X → 51

C → 18 >  
X → 13 >

31/8      sub / 2nd

17/8/47  
n 103

April 15, 1947.

	FH (2% glucose +).	N2 Case 5 P15
HC 1/2%	++	+
N2 Case 1/2%.	+++ growth 12 h.	++
1. Glutamic acid.	++	++
2. Glycine	++	++
3. Serine	++	++
4. Aspartic acid.	+	+
5. Asparagine	+	++
6. Glutamine	+±	++
7. Proline	+	+
8. Hydroxyproline	++	++
9. Cysteine	++ H <sub>2</sub> S + g.	++
10. Alanine	+	—
11. Tyrosine	++	++
12. O.	+	++

1 mg / 10 ea.

The production of gas in the minimal medium is at odds with previous results, and perhaps speaks for some error.

Repeat: OK. — gas produced on FH (O) by K-12 in 36-48 h.

abandon momentarily. One could seek an ~~at~~ antagonist of formate, however, which seems to be present in N2 Case.

Staphylococcus?

Phytoplanes - Recombinations.

4/85

April 1947

Strains: **B.** A6/Pro/MG. **A.** A6/Sth/Sun. more separately and together  
after growth on 2 slants, into canot medium. - 4 wls. sediment & earth pellets.  
1: canot 2: slant. more from canot into YB lig: 3.

On 1AB/Nut-Agar plate, 1 "rough" colony noted.  
circle to recover

Read at  
48h

A = Proflavine 100u/ml.  
B = Haledite Sun 100u/ml.  
C = Streptomycin 50u/ml.  
D = Streptothricin 100u/ml.

		①	②	③	④	⑤	⑥	3A	3B	3AB.
11	A	- R	-	+	++	-	+	-	-	+
12	B	-	±	±	++	-	+	-	-	++
13	C	++	✓	-	R	✓	±	++	✓	++
14	D	++	-	-	R	✓	±	++	✓	++
5	AB	-	-	R	✓	+	++	-	-	++
7	AC	-	-	R	✓	±	R	-	-	many R
8	AD	-	-	R	✓	±	R	-	-	R
9	BC	-	-	R	✓	-	-	-	-	± of 1B
10	BD	-	-	R	✓	-	-	-	-	-
6	CD	++	Pag.	R	✓	±	++	-	-	+
1	ABC	-	-	✓	-	-	-	-	-	-
2	ABD	-	-	✓	-	-	-	-	-	-
3	ACD	-	-	R	✓	-	-	-	-	- R
4	BCD	-	-	R	✓	-	-	-	-	-
15	ABCD	-	-	✓	-	-	-	-	-	-
	NA.	+	+	+						

In series ~~1 to~~ P 21; also more on NA plates for strains 3.  
1 + 2

Streak on plates in order:

Read at 12h.

2) 48h No evidence of recombinations. Proflav + H.G. apparently intact. (see 5).

3) 60h. Strains 3 and 4 do not suggest recombinations.

R = individual resistant colonies (1-10)

more 3AB N24.

Use ACD & B in combinations.

$\text{Ca}^{2+}$  precipitation of  $\text{Ca}^{2+}$

486.

220 mm Hg

440 x 488.

Campanile  $\approx$  181A.

A. T(O) B. T(B).

Streak out on CLA-minimal or CLA-biotin agar.

A. 1R/6 S. = 1/2 spark!

B. 1R/6 S. = 1/2.

2/16 = R. und data on precipitation  $\approx$   $\text{B}^-$

Use selection of  $\text{Ca}^{2+}$  on B plates, in reverse order to establish consistency.

# 14/16 Res.

Homogeneity of  $B_+$ -types.

441.

Aug 22 1957  
B.C.M.L. 20/7

(A) Plate Y40 x Y88 on  $B_+$ -Acetate medium. This should select for  $B_+$  type ~~+~~ aggregates. By plating these colonies onto SMILS-like medium, it should be possible to eliminate the parental types ( $B_+$ -type, a minority;  $T-L-B_+$  (eg.  $B_+$  requirement) and find any complementary aggregates.

Growth is meth-eaten, suggesting phage! very strikingly.] See 489. 4-9.  
probably not.

(B.) Plate Y40 x Y88 on  $B_+$  medium, spreading very lightly (to avoid contaminating). Pick 100 colonies carefully to minimal (ca 20 colonies/plate). and test: Strike out original isolates of those containing a  $B_+$  component to find any possible  $B_-$  types

Scoring as  $B_-$  or  $B_+$  not very clear cut. Group A. more definitely  $B_+$  Group B doubtful.

A. - 15.     $B_-$  - 17.    streaked out on Lac plates.

1	all -
2	all +
3	+
4	-
5	-
6	+
7	-
8	-
9	+
10	-
11	-
12	-
13	-
14	-
15	no cols.

+ 10/4  
all phage homogeneous unless Lac reaction affin. Test these individually

1	100+1-
2	100+1-
3	all -
4	"
5	"
6	"
7	all +
8	<del>all -</del>
9	all -
10	all -
11	all +
12	all -
13	"
14	"
15	no colonies
16	all -
17	all -

~~11-~~ / 5+

7 de.

See over.

strike one isolate ± 4 cols. each plate.

A) mostly +R ~~cla~~<sup>R</sup>  
~~cla~~      cla<sup>R</sup>  
I - S.  
TLB<sub>1</sub>

B) mostly -R cla<sup>R</sup> (B<sub>1</sub>)  
I + R      cla<sup>S.</sup> (B<sub>2</sub>)

parental

no new combinations aside  
from main component in these colonies!

23 Nov 1961

A. Y40 x Y86. (to compare  $V^R$  loci)B. (to deduce mucle required).  $B-M-Lac+V_{IA}^RMuc^- \times T-L-B_1-Lac-V_{IB}^RMuc^+$ 

(-S Sm.) .  $V^RM^+Lac-$  16  $\therefore V_I^R \neq V_{IB}^R$

 $V^RM^+Lac+$  3 $V^RM^-Lac-$  1488-1  $-V^SM^-Lac-$  1 This Recombination suggests that488-2  $V^RM^+Lac+$  1  $V_{IA}^R \neq V_{IB}^R$ 

$$\frac{16 + 3}{2} = 9.5 \text{ S.}$$

B. ~~Y58-161~~ x Y86. (to test complexity of  $Muc^+ - V^R$ ).  $Lac+V_{IA}^RMuc^- \times Lac-V_{IB}^RMuc^+$ 

(to deduce mucle required.)

(-R Sm.) .  $V^RM^+Lac-$  13  $\therefore Muc^+ \neq V_{IB}^R$

 $V^RM^+Lac+$  3 $V^SM^-Lac-$  1488-3  $V^RM^-Lac-$  1. This recombination suggests that[exacts to all phage. contam? I]  $Muc^+ \neq V_{IB}^R$   
"diplocii"

Compare the resistance patterns of 488-1; 2; 3; Y40; Y86

Compare recombination values of Mucoid/Lac = Standard  $V_I^R$ /Lac.

From accumulated data: 45.29

Y40 x Y53.  $\frac{VR\ Lac - V^R\ Lac+}{846 - 546} / 1392 = 60.6\% - 39\%$ .

Y40 x Y86 56 15 / 71 = 79% - 21%

 $\therefore V_{Muc}^R$  is ~~infective~~

Rousseau & Ha R.

488

24 Sept 1927.

Plate 488 into Acetate - minimal.  
.1%  
Indefinite background growth. no dense colonies. probably  
Ac too low.

490

490.

Allelism of  $V^R$ 

April 23, 1947

allelism of  $V^R$ .  $Y40 \times Y64$ .all resistant.

$T(0)$ .	lac-	lac+	
4	1 (Macroid)		159/159

$T(B_1)$	11	4	
	15	4	
	11	7	
	13	4	
	13	5	
	18	0	(1)
	15	3	
	9	0	
	13	5	

122    32    | 154. = 79% Lac-    This distribution  
 fits  $Y64 \times S8-161$  better than  $Y53 \times Y54$

Compare fit  $\pm$  accumulated data.

a).	106	48	✓	
	122	32	154	
	562	578	1784	
	122	21206	1528	610
				1938

$$\chi^2 = \frac{16^2}{16} = .25$$

$$\chi^2 = \frac{9}{9} = 1$$

$$\chi^2 = 2.42$$

$$\chi^2 = 5.32$$

$$\chi^2 = 1.45$$

$$\chi^2 = 8.44$$

for  $Y40 \times Y53$ .

$\chi^2 = < 1.$	11	122		32		154	
	540	537		159		696	
	659	191		850			

L- linkage Retention of  $\text{Cl}^-$ .

24 APR 1951

Plate 440 x 188 into Biotin-Acetate-agar [select for  $\text{Ac}^+ = \text{Cl}^-$  and compare segregation of  $\underline{\text{B}}^-$  and  $\underline{\text{B}_1^-}$  in the  $\text{Cl}^-$  class].

b.g. see 489

24 APR 1957

1. Cf. 490. 1 drop of Y40 x Y64 mixture in P<sub>2</sub> yeast medium, to compare  $\bar{\epsilon}$  490 for rate. (grows in YB; plate in MW) 0.
  2. Y40 x Y53. grow in M-W: do.
  3. Y40 x Y53 grow in M-W Plate in T(0)
  - ~~4. Y40 x Y53~~ grow in YB
  5. Y40 x Y53 grow in YB Plate T(0). 39, 35. ca 40
  5. do. do. Plate M-W 0.
- } adjusted  
to ca.  
same  
medium. > 200.

The medium is n.g. for plating, but may be OK, or better than YB for growing cells permissively. Try  $\frac{1}{2}$  buffer.,  $\frac{1}{2}$  KNO<sub>3</sub>. Difference is within range of normal variation / expt. to another.

Medium: per liter

KNO <sub>3</sub>	1
glucose	10
MgCl <sub>2</sub>	5
K <sub>2</sub> HPO <sub>4</sub>	3
Na <sub>2</sub> PO <sub>4</sub>	1
Na <sub>2</sub> SO <sub>4</sub>	.1
trace + CaCO <sub>3</sub>	

I (N<sub>2</sub>ase 5  
Yeast ext 2.5) for do.

April 26, 1947.

- A. Y87 ( $B-M-V_1^R \cdot Lac-$ )  $\times$  Y10 ( $T-L-B_1-V_1^S \cdot Lac+$ ). for segregation of  $Lac-$ . (prediction:  $+R > +S = -R \ggg -S$ ).
- B. Y87  $\times$  ~~Y64~~ ( $B-M-V_1^R Lac-$   $\times T-L-B_1-V_1^R Lac-$ ). fastest galloism.

B). 134 tests of prototrophs all  $Lac-$   $\therefore$  loci are allelic.

A) Segregation:

Mated m(10)	-R	-S	+R	+S.	
7	7	1	7	6	
5	5	3	7	3	
3	3	0	9	9	
7	7	0	6	6	
2	2	1	11	7	
4	4	1	6	6	
<b><math>\Sigma</math></b>	<b>28</b>	<b>6</b>	<b>46</b>	<b>37</b>	<b>117</b>

mT(B <sub>1</sub> )	9	1	16	9	
5	5	0	16	10	
7	7	0	8	4	
5	5	1	13	3	
4	4	0	10	3	
4	4	0	10	4	
5	5	0	9	4	
8	8	1	12	1	
4	4	0	10	5	
4	4	0	6	6	
2	2	0	8	4	
6	6	1	14	6	
6	6	0	12	3	
6	6	1	6	5	
4	4	0	7	4	
9	9	1	13	3	
6	6	0	5	3	
1	1	0	7	6	
			10	3	
<b>102</b>	<b>7</b>	<b>201</b>	<b>91</b>	<b>401.</b>	

Y91 x Y53.

496

Y91 x Y53 ( $B_1$ -M-Cla<sup>R</sup>V<sub>1</sub><sup>R</sup> x  $B_1$ -T-L-Lac-V<sub>1</sub><sup>S</sup>Cla<sup>S</sup>)

Minimul plates too crowded.

$B_1$  - streak on  $B_1$ -Cla or ~~the~~ DNA to classify mutants/susceptibility.

4/56 ~~isolated~~ Resistant

Use plating on  $B_1$ -C<sub>12</sub>H<sub>22</sub>O<sub>11</sub> for lactoseless.

Halo-Acetate mutants.

497

April 26, 1947

Streak on indicated plates.

		Baclo	Papillae
Y64	Cla 1	+	+++
58-161	Cla 1	+++	-
<u>Y90</u>		+	+++

4/27.

			Bac.	Pap.
Y64	Cla 2	± ± + ++	Y94	Salm. 20
58-161	Cla 2	± ± + ++	Y96	Salm. 21
Y90	Cla 2	± ± + ++	Y95	dermace.
Y92	A2 50	+++ -		Phytophthora
Y92	A2 100	++ -		Steph.
Y53	A2 50	++ -		
Y53	A2 100	- ++ -		
Y40	Ia 25	++ —		
Y93	Ia 25	+++ —		
Y40	Ia 50	* - ++	Y97	
Y93	Ia 50	+++ —		

Y95. Cla Ia Cla+Ia

Interaction??

need  
a buffered  
test medium  
probably.)

Streak out all  
mutants on N.A.  
Test on inhibition  
and translocation  
plants.

Note - terminology: unless otherwise stated, figures are v/ml. Underlined figures  
are mg/ml.

# Virus Resistance Pattern.

498

	T1	T3	T4	T5	T6	T7	
Y40	"R"	R	S	(S)	S	S	
K-12	"R"	R	S	S	S	S	note!
"V <sub>1</sub> 4-bac-	488-1	"R"	R	S	S	S	
"V <sub>1</sub> 4-bac+	488-2	"R"	R	S	S	S	
3	488-3	"R"	R	R	R	R	contamin?
	Y86	"R"	R	R	R	R	
	Y65	"R"	R	-?	-	-	too light nice
	Y68.	"R"	R	S	S	S	

This phage off in  
other plate. Agar!  
phage?

Y40 V<sub>1</sub><sup>R</sup> V<sub>3</sub><sup>S</sup> V<sub>5</sub><sup>S</sup>. compare original description  
 K12 = S...  
 488-1 = S...  
 488-2 = V<sub>1</sub>R, S..  
 Y86 = V<sub>1</sub>S! (unstable : reverted??)  
 Y65 = R....  
 Y68 = S....

Repeat T3, T1.

	T1	T3
Y40	R	S
K12	S	S
488-1	S	S
488-2	R	S
!	Y86	S
	Y65	R
	Y68.	S.

Unstable resistant?? Less mucoid on this plate

strikes out

streak out → streak Y86 is predominantly mucoid; a few smooth colonies  
This when streak is predominantly smooth; a few mucoid colonies.

# Camphor & Polyploidy

445

April 25, 1977.

Add varying amounts of 30% Camphor in 95% Alcohol to plates to give following "concentrations" of camphor. Incubate 3 days. Step 53:

- 1. 0
- 2. 100
- 3. 1
- 4. 2
- 5. 5
- 6. 10

Very little growth inhibition was noted except in #6 (10% camphor!) where there was considerable retardation. Comparison of cells from 6 and 1 reveals the presence of many heads, ~~de~~ gate slightly elongate bacteria.

Streak out 6 on EMB to isolate clones and test for diploidization by the suppression of recessive mutations (e.g.  $\text{Ura}^+$ ). Many smooth-moroid colonies noted.

Papillae on DA?

1	$\pm$	16	+
2	$\pm$	17	++
3	+++	18	+++
4	-	19	++
5	-	20	+
6	++	21	+
7	+	22	+
8	-	23	++
9	-		
10	++		
11	+++		
12	$\pm$		
13	+++		
14	$\pm$		
15	$\pm$		

Recover 4, 5, 8, 9 to test for polyploidy.

# Utilization of Acetyl-Glycine

~~447~~  
580

April 27, 1947

See 480. Glucose Glycine  
Acetate ~~Glycine~~ Glucose

48L-702h.

~~K~~ Y89 K-12 Y89. K-12  
Y K

A. 1%	-	-	-	-	-	-	-	-	-	-	-	-
2	-	-	-	-	-	-	-	-	-	-	-	-
3	-	-	-	-	-	-	-	-	-	-	-	-
4	-	-	-	-	-	-	-	-	-	-	-	-
5	-	-	-	-	-	-	-	-	-	-	-	-

1	-	-	-	-	-	-	-	-	-	-	-	-
2	-	-	-	-	-	-	-	-	-	-	-	-
3	-	-	-	-	-	-	-	-	-	-	-	-
4	-	-	-	-	-	-	-	-	-	-	-	-
5	-	-	-	-	-	-	-	-	-	-	-	-

B.  
~~K~~  
2%

1	-	-	-	-	-	-	-	-	-	-	-	-
2	-	-	-	-	-	-	-	-	-	-	-	-
3	-	-	-	-	-	-	-	-	-	-	-	-
4	-	-	-	-	-	-	-	-	-	-	-	-
5	-	-	-	-	-	-	-	-	-	-	-	-

ACETATE  
GLYCINE ✓

C.  
~~K~~  
4%

1	-	-	-	-	-	-	-	-	-	-	-	-
2	-	-	-	-	-	-	-	-	-	-	-	-
3	-	-	-	-	-	-	-	-	-	-	-	-
4	-	-	-	-	-	-	-	-	-	-	-	-
5	-	-	-	-	-	-	-	-	-	-	-	-

D.  
~~K~~  
.5%

1	-	-	-	-	-	-	-	-	-	-	-	-
2	-	-	-	-	-	-	-	-	-	-	-	-
3	-	-	-	-	-	-	-	-	-	-	-	-
4	-	-	-	-	-	-	-	-	-	-	-	-
5	-	-	-	-	-	-	-	-	-	-	-	-

E.  
1%

1	-	-	-	-	-	-	-	-	-	-	-	-
2	-	-	-	-	-	-	-	-	-	-	-	-
3	-	-	-	-	-	-	-	-	-	-	-	-
4	-	-	-	-	-	-	-	-	-	-	-	-
5	-	-	-	-	-	-	-	-	-	-	-	-

F.

Acetyl-Glycine .5%

+ +

++ ++

++ ++

1. " + glucose  
both + in 11 hours  
all others -.

Glucose  
1% glucose

Readings at 24h:

Conclusion: Glycine is not utilized; not inhibitory  
Acetyl-glycine is utilized by both  
Acetate is not utilized by mutant comp/mild

Staining in zone of lysis.

501

April 27, 1947.

Compass 453 lysed by T' on:

EMB - lactose :

- sucrose :

- blank. :

all show clearing in <sup>magnis.</sup> lytic zone, suggesting that it is mostly staining of debris.

# Segregation of A<sub>2</sub> and I<sub>a</sub>

SD 2

April 28, 1947

A. Y90 x Y53      B. Y92 x Y53  
 (Y40/I<sub>a</sub>)      (Y40/A<sub>2</sub>)

A.

T(0).

>  
TB.  
1

readings on complete are unreliable.  
 complete tests on technique for synthetic should be developed.

T(B<sub>1</sub>).

B:	Lac V <sub>1</sub>	R	S
-R	-S.	29	2
+R	12	1	

Use 100 v/ml NaN<sub>3</sub> in T(0) + B<sub>1</sub>. Somewhat too concn!

B.	BM	Lac	V	TL	A <sub>2</sub>
-	++	-	S	--	S
+	--	+	R	++	R

Hence R. ∴ A<sub>2</sub> is near TL.

ca 8% recombination.

either beyond or between T-L      Use solution to locate

Segregation of  $V_m^R$ ; Mutation.

503.

April 28, 1947.

A) Y86 x 58-161

B) ~~Y86 x Y40.~~

not useful. Interesting types could be merely mutants. [Accurate mutation?]

T(10) - no colonies (could??)

T(B<sub>1</sub>) -

Mucoid character too poorly expressed, although many of the colonies picked looked as if they should be muc. Is this progressive "attenuation" of this character??

A 1. 1. Strains out Y86 stock on EMBS-lactose; ~~smooth~~.

34 Muc : 31 smooth.

P 2 2: Strains out: A. Muc from 1. B. Mix pop. from 1.

A: "all" mucoid ~~smooth~~.

B: 19 Muc : 70 smooth.

P 4 3 A - mucoid from 2A. B. Mix pop. from 2B.

all mucoid.

ca 100:1 smooth : mucoid

A 6 4. A - mucoid from 3A. B Mix from 3B.

all mucoid.

> 200:1 smooth : mucoid

P 7 5. B. (mix) from strains of 4. all mucoid

P 10 6 strains from mass strain of 5: ca 10 Mucoid : 1 smooth.

Selection and mutation of *Vicia*<sup>R</sup>

503a

May 15, 1947.

A15. 7. Stake from mass-stake of 6.  
ca 45: 20 M: Sm.

A17 8. Stake from mass-stake of 7.  
ca 23: 43 M: Sm.

A18 9. do. 9: 21 M: Sm.

P20. 10. do. 19: 48 M: Sm.

P22 11. do.

# Acetyl utilization

504

April 29, 1947

Ac. Glucose Glycine.

12-24 h. 36-48 h. 60 h.  
K-12 Y89. K-12 Y89

1. 1/2%	- - - - -	- - + + ±
2. 1/4% 1/4%	- + ± + ++	+ ±
3. 1/4% 1/4%	- - - - -	± ++ ±
4. 1/2%	± + ± ++ ++	++ +++ +++
5. 1/2% 1/2%	± ++ + ++ ++	++ +++ +++
6. 1/2%	- - - - -	- - -
7. 1/4%	- - - - -	- - -
8. Acetyl-Glycine 1/2%.	± ± - ± + +	+ + +
9. 0 0 0	- - - - -	- - -

Autoclave separately from  
medium. Adjust acetate  
to pH 6.8  $\pm$  AcOH before  
using.

The differential between K-12 and Y89. on acetate is not complete; there is a definite residual growth. Stimulation by glycine (not used by itself) accentuates the difference.

(Use strictly aerobic or anaerobic conditions?)

80 h: K-12 Y89.

1. Ac.	++	+	} eventually the bug does better on acetate than on Ac-Gly!
3.	++	±	
8	+	+	

diacetyl-diketopiperazine 1/2%  
with K-12 or Y89  
showed any  
response!

Tests of Camphor Treatments

525.

May 1, 1947.

See 499.

Recover presumptive strains.

- a) Stake again on CTA agar. b) Cross  $\times$  440. c) streak out on EAB lactose  
 4, 5, 8 finally throw off many instances  
 9 only  $\frac{1}{2}$ .  
 all isolates are bac-V<sup>s</sup>  
 but semi-mucoid character  
 interferes with determination  
 of acetone.
- b. P2. ~~1 ml~~ 0.1 ml mixtures into B<sub>1</sub>, plain agar respectively.

1. 499-4    2. 499-5    3. 499-8    4. 499-9.     $\times$  440.

Re recuperation between O and B, plates nearly ca 3-fold rather than 10-fold.

1-CO).	Smooth.				Mucoid			
	+R	-R	+S	-S	+R	-R	+S	-S
(1)	T(0)	1			2	9		1
	B <sub>1</sub> :	11	5		9	22		3

(2) T(0) —

T(B<sub>1</sub>) 14 32 1 11 typical segregation.

(3) T(0) 1

T(B<sub>1</sub>) 13 1 1 21

(4) T(0) 2 8 2 10

T(B<sub>1</sub>) 16 21 2 16 2

The Y53 2x doubled is not a good test; better would be 440 which carries more dominant alleles.

Resistance Patterns:

506

	①	②	③	OK	OR.	⑤	⑥	
T-1	T <sub>3</sub> A	T <sub>3</sub> B	T <sub>3</sub>	Batch 2		T <sub>5</sub>	T <sub>5</sub> Batch 2	T <sub>1</sub> . Start new stocks -
K-12	S	R	S	S	S	S	S	
Y40 (turn 140 phage)	R	R	S	S	S	R		
Y40 pure.	R	R	S	S	S	R		
Y53	S	S	S	S	S	S		
Y64	R	S	S	S	S	R		
887	R	R	S	S	S	R		

It is phage stocks which have varied, not original cultures since Y40 or Y40<sub>av</sub> in all respects. T<sub>3</sub>A must be filamentous. T<sub>5</sub> Batch 2 behaves like T<sub>1</sub> and is similar to previous responses. Could it be contaminated??

Phages and purification! Recheck T<sub>3</sub>A. Present indications favor the interpretation that the results of last fall were due to gross contamination of T<sub>3</sub> and T<sub>5</sub> & T<sub>1</sub>.

Program: Purify T<sub>5</sub>-~~OK~~ and isolate components.

④ was streaked out and exhibited both large and small plaques. Pick from a large and a small plaque and streak each with K-12 and Y40.

P 5 T-5 from original culture (Dumerec) was plated with K-12 but gave no plaques. Several revertants appeared; test these with T<sub>1</sub>, etc. Use this to reinitiate T<sub>5</sub> stocks.

Phage stocks

507.

1. Start new T5 stock from
  - 1) lysate using original T5 on K-12
  - 2) small colony picked from existing T5.
2. Other stocks OK. Renew T1 on K-12.
3. Test a large-plaque component of old T5 on K-12, Y40, K/5.
4. Test T1 on K-12, Y40, K/5. (from 506 R5).

T1	"T5" large	"T5" small	"T5"
K-12	S	S	S
Y40	R	R	R
K/5.	R	R	R
"	R	R	R
"	R	R	R

↑ from  
original!  
bottle

there are isolates

from 506 - (5) which, previously, lysed Y40.

Accession.

828.

May 2, 1947.

Plate Poria ca  $10^9$  / .1 ml on middle of VAs plates + irradiate at ca 2500 r/min 20 min  $\approx$  50,000 r. Weight 60 to 25 mg.

① After shaking agar strip in  $H_2O$  ca 3 h., streak out on EMBS.

2. ~~Streak out original sample on EMBS.~~ (Y40 only).

3. Killing very great. Probably only ca  $10^2$ - $10^3$  survivors.

Streak out proliferated cultures on EMBS.

Iodate 14 colonies each from Y40X and Y53X and streak across each other. Plate mixed growth on T(0) agar. (28 tests).

# of protot.

1	20
2	30.
3	20
4	10
5	30
6	20
7	20.
8	20
9	200
10	10
11	20
12	20
13	100
14	10

No crossover suppression here!